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FAIRFIELD, CT 06824			2855	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/502,454

Applicant(s)

HJELT ET AL.

Examiner

Punam Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/23/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/23/04, 05/23/05.</u> | 6) <input checked="" type="checkbox"/> Other: <u>IDS-04/03/06.</u> |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “interconnecting element” must be shown or the feature canceled from the claims. No new matter should be entered.
2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 7 is objected to because of the following informalities: The term “from” is a typographical error; for the purposes of examination the term “from” will be read as “forms”.

The phrase “the acceleration sensors arrangement” has insufficient antecedent basis; for the purposes of examination the phrase “the acceleration sensors arrangement” will be read as “the acceleration sensor arrangement”. Appropriate correction is required.

4. Claim 11 is objected to because of the following informalities: The phrase “single crystal silicon” contains a grammatical error; for the purposes of examination the phrase “single crystal silicon” will be read as “single-crystal silicon”. Appropriate correction is required.

5. Claims 16-18, 20-21, and 23-24 are objected to because of the following informalities: The phrase “the arrangement” has insufficient antecedent basis; for the purposes of examination the phrase “the arrangement” will be read as “the acceleration sensor arrangement”. Appropriate correction is required.

6. Claim 18 is objected to because of the following informalities: The phrase “the acceleration” has insufficient antecedent basis; for the purposes of examination the phrase “the acceleration” will be read as “an acceleration”. Appropriate correction is required.

7. Claim 22 is objected to because of the following informalities: The phrase “the event” has insufficient antecedent basis; for the purposes of examination the phrase “the event” will be

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read as “a damaged detecting means”. The phrase “the terminal user” has insufficient antecedent basis; for the purposes of examination the phrase “the terminal user” will be read as “a user of the handheld terminal”. Appropriate correction is required.

8. Claim 23 is objected to because of the following informalities: The phrase “the terminal” has insufficient antecedent basis; for the purposes of examination the phrase “the terminal” will be read as “the handheld terminal”. The term “witched” is a typographical error; for the purposes of examination the term “witched” will be read as “switched”. The term “indicating” is a grammatical error; for the purposes of examination the term “indicating” will be read as “indication.” Appropriate correction is required.

9. Claim 24 is objected to because of the following informalities: The phrase “the method comprising giving” is a grammatical error; for the purposes of examination the phrase “the method comprising giving” will be read as “the method comprises giving”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim is generally narrative and indefinite, failing to conform with current

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U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-3, 7-10, 13, 15, 17, 18, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Seidel et al. (US 6,122,965).

14. With respect to Claim 1, Seidel et al. teaches, in Figure 1 and the Abstract, an acceleration sensor arrangement, an acceleration sensor comprising a first body portion (#5), a second body portion (#3a), an interconnecting element (#4a) making the first body portion integral with the second body portion and detecting means (#7) arranged for giving an indication when the second body portion damages the detecting means (column 2, line 50 to column 4, line 25, wherein the deformation of #4a due to the movement of #3a is read as damaging the detecting means), characterized in that the acceleration sensor arrangement comprises a group of at least two said acceleration sensors arranged on one carrier, at least two of the sensors responding to different forces.

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15. With respect to Claim 2, Seidel et al. teaches the acceleration sensor arrangement, wherein the group comprises acceleration sensors responding to forces in at least three different directions (column 2, lines 33-42).
16. With respect to Claim 3, Seidel et al. teaches the acceleration sensor arrangement, wherein the detecting means comprises a conductive path arranged at least on the interconnecting element and arranged at a distance from the second body portion (see Figures 1 & 3).
17. With respect to Claim 7, Seidel et al. teaches the acceleration sensor arrangement, wherein the detecting means forms a part of an electric detection loop (column 2, lines 47-59, wherein the Wheatstone resistance bridge is read as an electric detection loop).
18. With respect to Claim 8, Seidel et al. teaches the acceleration sensor arrangement, wherein the indication is stored in a memory (column 4, lines 19-25).
19. With respect to Claim 9, Seidel et al. teaches the acceleration sensor arrangement, wherein the indication is remotely readable (column 4, lines 19-25, wherein the read-only memory of the microprocessor is understood to be remotely readable).
20. With respect to Claim 10, Seidel et al. teaches the acceleration sensor arrangement, wherein the acceleration sensor is produced by micromachining technology (column 2, lines 56-

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59, wherein the micromechanical connecting process is read as the micromachining technology) using a surface mountable brittle material (column 2, lines 56-59, wherein the silicon wafer is read as the brittle material).

21. With respect to Claim 13, Seidel et al. teaches the acceleration sensor arrangement, wherein the indication (wherein U is read as an indication) contains at least the information identifying a detecting loop broken by an external force (column 3, lines 32-44, wherein a break in a bending beam is read as a break in the detecting loop, which would result in $U = 0V$.)

22. With respect to Claim 15, Seidel et al. teaches the acceleration sensor arrangement, wherein the status of the acceleration sensor arrangement is readable from the memory (column 4, lines 19-25).

23. With respect to Claim 17, Seidel et al. teaches the acceleration sensor arrangement, wherein all sensors of the acceleration sensor arrangement are integrated in a single block (see Figure 1).

24. With respect to Claim 18, Seidel et al. teaches the acceleration sensor arrangement, wherein an acceleration of any of the sensors of the acceleration sensor arrangement is remotely identifiable (column 4, lines 19-34, wherein the read-only memory of the microprocessor is understood to be remote and allows the identification of acceleration of any of the sensors).

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25. With respect to Claim 24, Seidel et al. teaches a method in an acceleration sensor arrangement comprising a group of at least two acceleration sensors (see Figure 1), an acceleration sensor comprising a first body portion (#5), at least one second body portion (#3a), and an interconnecting element (#4a) making the first body portion integral with the at least one second body portion, the method comprises giving an indication when a second body portion of at least one acceleration sensor of the arrangement damages at least one detecting means.

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

27. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

28. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seidel et al. (US 6,122,965) in view of Shinji (JP 62036561).

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29. With respect to Claims 5 and 6, Seidel et al. fails to teach the interconnecting element adapted to break when an external force affecting the second body portion of the acceleration sensor exceeds a predetermined threshold level. One of ordinary skill in the art would understand that a break of the interconnecting element would cause a break in the conductive path of the detecting means in the sensor of Seidel et al. Shinji teaches, in the Abstract, an acceleration sensor comprising a first body portion (#1), a second body portion (#8), an interconnecting element making the first body portion integral with the second body portion (#3), wherein the interconnecting element is adapted to break (wherein the break is read as an indication containing information identifying a broken detecting loop) when an external force affecting the second body portion of the acceleration sensor exceeds a predetermined threshold level (see Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Seidel et al. to have an interconnecting element adapted to break, as taught by Shinji, in order to detect when the maximum acceleration was surpassed without use of any special detection circuit (Shinji, see Abstract).

30. Claims 4, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seidel et al. (US 6,122,965) in view of Bashir et al. (US 5,747,353).

31. With respect to Claim 4, Seidel et al. teaches the acceleration sensor arrangement, wherein the detecting means comprises a conductive path at least on the interconnecting element and outputs a signal indicating the detected acceleration. However, Seidel et al. fails to teach the conductive path comprising a conductive doped-silicon layer. Bashir et al. teaches, in Figure 5,

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an acceleration sensor, wherein a detecting means (#142, wherein the moveable element is read as the detecting means) comprises a conductive doped-silicon layer (#132). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the conductive path of Seidel et al. to comprise a conductive doped-silicon layer, as taught by Bashir et al., in order to have a monolithic device that has a signal conditioning circuitry fabricated using a silicon-on-insulator (SOI) structure. Thus, the SOI fabricated signal conditioning circuitry will provide a faster output with a lower noise level (Bashir et al., see Abstract).

32. With respect to Claim 11, Seidel et al. fails to teach that the brittle material is single-crystal silicon. Bashir et al. teaches an acceleration sensor produced by using a surface mountable brittle material, wherein the material is single-crystal silicon (see Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the device of Seidel et al. using single-crystal silicon, as taught by Bashir et al., because single-crystal silicon does not suffer from stress related warping (Bashir et al., Abstract), thus providing better shock resistance for the device.

33. With respect to Claim 12, Seidel et al. fails to teach that the brittle material is polycrystalline silicon. Bashir et al. teaches an acceleration sensor produced by using a surface mountable brittle material, wherein the material is polycrystalline silicon (column 1, lines 58-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the device of Seidel et al. using polycrystalline silicon, as taught by Bashir et al., in order to have the acceleration sensors be compatible with fabrication techniques used in the

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semiconductor industry. As a result, they can be made using the same processing techniques as are used for the associated signal conditioning circuitry (Bashir et al., column 2, lines 1-7), thus reducing the manufacturing cost of the device.

34. Claims 14 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seidel et al. (US 6,122,965) in view of Tennes et al. (US 4,745,564).

35. With respect to Claim 14, Seidel et al. fails to disclose that the indication contains the time when the indication was given. Tennes et al. teaches an acceleration detection apparatus wherein an indication of acceleration contains at least the time when the indication was given (see Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Seidel et al. to have the indication contain the time when the indication was given, as taught by Tennes et al., in order to have a device that can provide an event-time history that can be read out and analyzed at a more convenient time (Tennes et al. column 2, lines 48-68).

36. With respect to Claims 19 and 20, Seidel et al. teaches the acceleration sensor arrangement, wherein all sensors of the acceleration sensor arrangement are integrated in a multichip module (see Figure 1). However, Seidel et al. fails to disclose the single block comprising a means for storing indications containing the time when the indication was given and the identity of the detecting means. Tennes et al. teaches a detection apparatus containing in

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the same housing, acceleration sensors and a microcomputer (column 3, lines 5-7), wherein the microcomputer is a means for storing indications containing at least the time when the indication was given (see Abstract) and the identity of the detecting means (column 2, lines 60-68, wherein the direction of acceleration is read as the identity of the detecting means). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Seidel et al. to include a means for storing indications containing the time when the indication was given and the identity of the detecting means, as taught by Tennes et al., in order to have a device that can provide an event-time history that can be read out and analyzed at a more convenient time (Tennes et al. column 2, lines 48-68).

37. With respect to Claim 21, Seidel et al. fails to disclose the acceleration sensor arrangement, wherein all sensors of the acceleration sensor arrangement are integrated in an integrated circuit together with means for storing indications containing at least the time when the indication was given and the identity of the detecting means. Tennes et al. further teaches the detection apparatus, wherein all sensors of the acceleration sensor arrangement are integrated in an integrated circuit together with means for storing the indications containing at least the time when the indication was given and the identity of the detecting means (see Figure 4 and Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Seidel et al. to have all sensors of the acceleration sensor arrangement integrated in an integrated circuit together with means for storing indications containing at least the time when the indication was given and the identity of the detecting means, as taught by Tennes et al., in order to provide an all-in-one device which can be fixedly

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attached to a larger object to concurrently sense accelerations and store the sensed acceleration events, and the times of occurrence of those acceleration events so that they can be read out and analyzed at a more convenient time (Tennes et al., column 2, lines 48-58).

38. Claims 16, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seidel et al. (US 6,122,965) in view of Heikkinen (EP 1 109 378 A2).

39. With respect to Claim 16, Seidel et al. teaches the acceleration sensor arrangement adapted to give a warning (wherein the output of the piezoresistors is read as a warning) to a user (wherein it is understood that a user of the sensor would access the memory) when an external force affects the second body portion. However, Seidel et al. fails to teach a warning given when the external force exceeds a predetermined threshold level. Heikkinen teaches a sensor arrangement adapted to give a warning (wherein the peak signal is read as a warning) to a user (wherein the service technician is read as a user) when an external force affecting the sensor exceeds a predetermined threshold level (column 2, lines 12-15 & column 3, lines 5-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Seidel et al. to be adapted to give a warning to a user when an external force exceeds a predetermined threshold level, as taught by Heikkinen, in order to provide a simple and inexpensive means of monitoring the shock to which a mobile electronic apparatus is subjected (column 1, lines 19-21) and to determine if damage caused by the shock will be covered by warranty services (column 1, lines 10-18).

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40. With respect to Claim 22, Seidel et al. fails to teach the acceleration sensor arrangement characterizing a handheld terminal and the acceleration sensor arrangement giving an indication to a user of the handheld terminal of a damaged detecting means. Heikkinen teaches a handheld terminal (column 1, lines 1-5, wherein the mobile electronic apparatus is read as a handheld terminal) that is characterized by a sensor arrangement that determines when the handheld device is subjected to excessive force and the sensor arrangement giving an indication (column 3, lines 10-15, wherein the shock signal record is read as an indication) to a user of the handheld terminal (column 3, lines 10-15, wherein the service technician is read as a user), of a damaged detecting means (column 2, lines 55-58, wherein the jarred diaphragm is read as a damaged detecting means). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Seidel et al. to be utilized in a handheld terminal to provide an indication of a damaged detecting means, as taught by Heikkinen, in order to provide a simple means of monitoring the shock to which a mobile electronic apparatus is subjected (column 1, lines 19-21) and to determine if damage caused by the shock will be covered by warranty services (column 1, lines 10-18).

41. With respect to Claim 23, Heikkinen further teaches, in column 3, lines 5-21, the warning given to a user of the terminal if the indication is active (the downloadable shock signal record is read as being an active indication) when the handheld terminal is switched on (the serviceable mobile phone is read as being a switched-on handheld terminal).

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42. With respect to Claim 25, no rejection based on prior art is proper at this time due to the informal nature of the claim, as noted above.

Conclusion

43. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Punam Patel whose telephone number is (571) 272-6794. The examiner can normally be reached on Monday to Friday 9:30 AM to 6:00 PM.

44. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

45. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PP


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